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EUROPEAN PATENT APPLICATION

⑬ Application number: 87110561.5

⑮ Int. Cl. 1: A61M 5/00

⑭ Date of filing: 21.07.87

The title of the invention has been amended
(Guidelines for Examination in the EPO, A-III,
7.3).

⑯ Priority: 25.07.86 IT 2264886 U

⑰ Date of publication of application:
16.03.88 Bulletin 88/11

⑱ Designated Contracting States:
BE DE FR GB IT LU NL SE

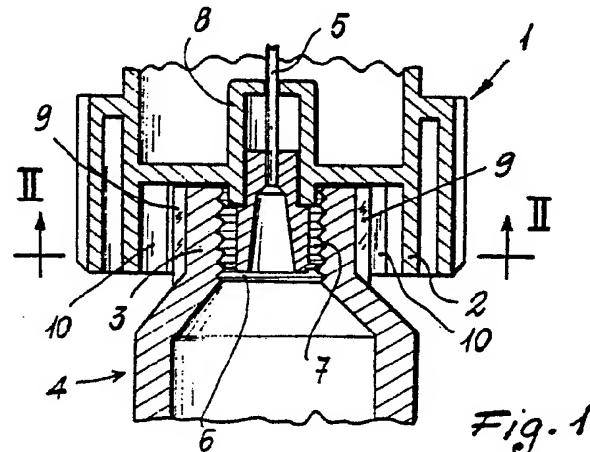
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㉒ Device for firmly locking a syringe in a coupling body.

㉓ The device comprises a body (1) provided with members for coupling it to one end of a bottle or the like and has a seat for housing the free end (3) of a syringe (4), with a hole for allowing for the syringe needle (5) to pass through. The device further comprises a syringe (4) and the free end (3) of which may be housed and threaded in said seat. On the side opposite surfaces of the body seat and at the syringe end (3) provided for insertion in the seat, there are formed radially projecting longitudinal teeth (9) and respectively slanted resilient fins (10) which are deflected by the teeth (9) as the syringe (4) is threaded to the body (1) and which abut against the fins (10) from preventing the syringe (4) from being screwed off the body (1).



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"DEVICE FOR FIRMLY LOCKING A SYRINGE ON A BODY WHICH MAY BE COUPLED THERETO"

The present invention relates to a device for locking, in a firm and not reversible way, a syringe on a body thereto the syringe is coupled.

As is known, syringes are provided with a needle for withdrawing from or injecting into a bottle or the like, or shaped end of a small sucking or discharging tube, a liquid, generally provided with pharmacologic properties: to that end, the syringe may be in a free condition and freely coupled to a bottle, or it may be mounted on an apparatus having a latching member at the bottle mouth. Such an apparatus, comprising a sealed chamber therein the needle is usually housed and therefrom the needle may exit only when the apparatus is firmly mounted on the mouth of a bottle or the like, is disclosed and illustrated by the U.S Patent N° 4,576,211.

For some applications and cases it may be dangerous or undesirable to allow for the syringe to disengage from the body thereto it has been coupled: for example it would be dangerous to detach the syringe from the apparatus disclosed by the above mentioned US Patent, or remove it from the shaped end of an intravenous injection small tube, thereinto a very dangerous pharmaceutical substance, such as a cytostatic drug, may be injected by the syringe.

Thus, the main object of the present invention is to provide such a device adapted for preventing a syringe from being disengaged from a body thereto the syringe has been coupled.

According to one aspect of the present invention the above and yet other objects are achieved by a device comprising a body provided with members for coupling it to the end of a bottle or the like or of a small tube and having a seat for housing the free end of a syringe, thereat there is formed a hole for allowing for the syringe needle to pass through, and comprising a syringe the free end of which may be housed in said seat, with the syringe needle extending through said hole, in said body seat and on said syringe complementary and cooperating threads being formed for threadedly coupling said syringe and body, wherein on the opposite side surfaces of said body, at said seat, and respectively on the end of said syringe to be inserted into said seat, or vice versa, there are provided radially projecting longitudinal teeth and respectively slanted resilient fins, said fins being deflected by said teeth as said syringe is threaded on said body and abutting against said fins so as to prevent the syringe from being screwed off said body.

For better understanding the structure and characteristics of the device according to the invention, a preferred embodiment thereof will be disclosed hereinafter, with reference to the accompanying drawing, where:

5 fig.1 schematically shows an axial longitudinal cross-section of the device, with its parts in an assembled condition, and

10 fig.2 is a cross-sectional view of the device, taken along the line II-II of fig.1.

15 The device illustrated in the drawing comprises a body 1, which is provided with members (which have not be shown for simplicity and since they may be made in different ways) for fixing it at the mouth of a drug holding bottle or the like, therefrom a tubular cylindrical wall 2 projects which defines a seat therein the free end 3 of a syringe 4 may be housed, with the syringe needle 5 extending through a hole formed at the center of said seat.

20 In the embodiment being disclosed, the body 1 (an end portion of which is shown in the drawing) consists of an apparatus like that disclosed in the US Patent 4,576,211 and adapted for engaging, under safe conditions, a drug holding bottle to a syringe: the needle 5 is firmly locked on the body 1 and a collar 6 projects therefrom therewith the free end of the syringe is engaged through a thread 7 formed inside the syringe free end.

25 30 It should be apparent that the body 1 may be different from the body of the mentioned US Patent. For example, the body 1 may be provided with a tubular cylindrical wall extending on an opposite side to the wall 2 and which may be screw engaged on or forced onto the mouth of a bottle or the like; or on the lug 8 of the body 1 the free end of a small tube may simply fitted on the other end of which an epicranial needle may be mounted for carrying out venous transfusions.

35 40 As shown in the drawing, on the outer surface of the syringe end 3 there is formed a tooth arrangement consisting of a continuous plurality of teeth 9 which longitudinally extend and the surfaces of which are slanted as shown in fig.2.

45 50 From the inner surface of the tubular wall 2 resilient and slanted fins 10 project which cooperate with the teeth 9: as it should be apparent, as the syringe is threaded to the seat of the body 1, the fins 10 will be deflected by the teeth 9 thereby allowing for the syringe to freely rotate to be firmly coupled to the body 1. On the other hand, if, after having coupled the syringe to the body, one tries to disengage it, then the fins 10(or at least some of them) will abut with their free ends against the

teeth 9, thereby preventing the syringe from being rotated in an anticlockwise direction (with respect to fig.2): in this way the syringe will be held firmly coupled to the body 1.

It should be apparent that the teeth may be formed on the inner surface of the tubular wall 2 and that the fins may project from the outer surface of the syringe end to be inserted into the seat of the body 1, with the same results achieved by the embodiment shown in the drawing.

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Claims

1-A device for locking a syringe on a body thereto the syringe is to be coupled comprising a body provided with members for coupling it to the end of a bottle or the like or of a small tube and having a seat for housing the free end of a syringe, thereat there is formed a hole for allowing for the syringe needle to pass through, and comprising a syringe the free end of which may be housed in said seat, with the syringe needle extending through said hole, in said body seat and on said syringe complementary and cooperating threads being formed for threadedly coupling said syringe and body, at said seat, and respectively on the end of said syringe to be inserted into said seat, or vice versa, there are provided radially projecting longitudinal teeth and respectively slanted resilient fins, said fins being deflected by said teeth as said syringe is threaded on said body and abutting against said fins so as to prevent the syringe from being screwed off said body.

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2-A device according to claim 1, wherein said body consists of an apparatus adapted for coupling, under safe conditions, a syringe and a drug holding bottle or the like.

3-A device, according to claim 1, wherein said body is a cover adapted for engaging with the mouth of a drug holding bottle or the like.

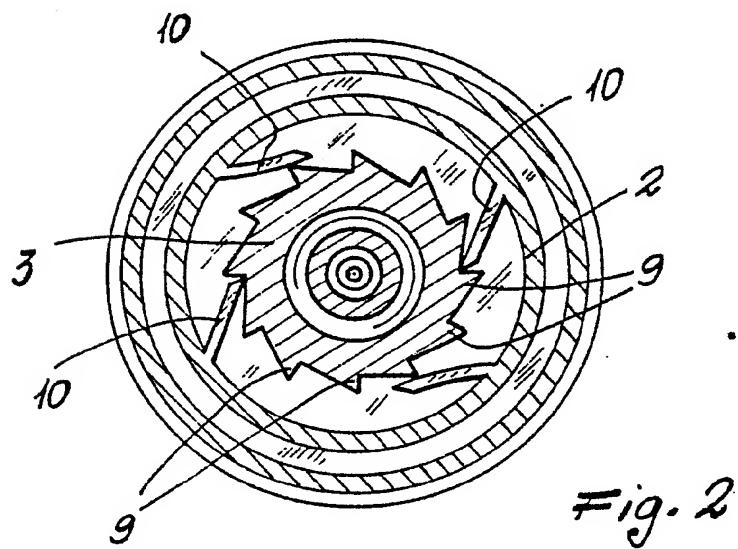
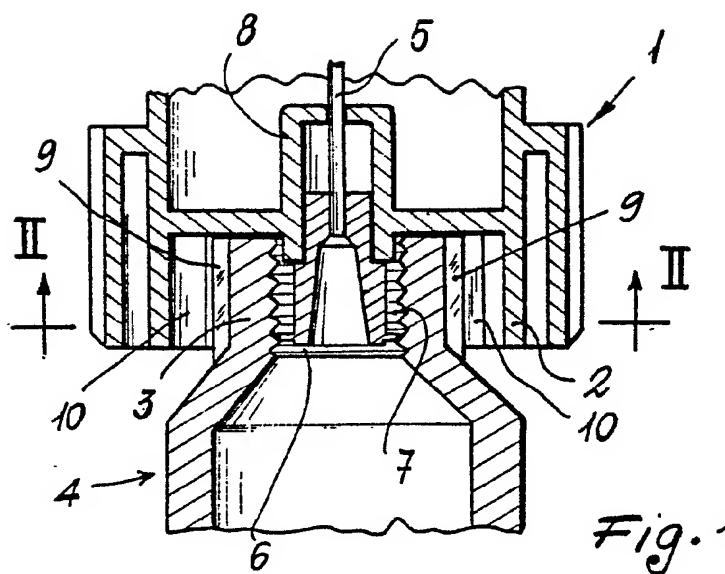
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4-A device according to claim 1, wherein said body is provided with members for coupling to it a small tube thereinto may be injected the liquid held by said syringe.

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DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	<p><u>EP - A2 - 0 161 797</u> (R. KOPFER et al.)</p> <p>* Totality; especially fig. 3; page 8, lines 16-23; page 9, lines 25-33; page 13, line 28 - page 14, line 21 *</p> <p>--</p>	1
D,A	<p><u>US - A - 4 576 211</u> (L. VALENTINI et al.)</p> <p>* Totality *</p> <p>--</p>	1
A	<p><u>US - A - 4 187 848</u> (G.N. TAYLOR)</p> <p>* Totality *</p> <p>-----</p>	1
TECHNICAL FIELDS SEARCHED (Int. Cl.4)		
A 61 M 5/00		
The present search report has been drawn up for all claims		
Place of search	Date of completion of the search	Examiner
VIENNA	24-11-1987	LUDWIG
CATEGORY OF CITED DOCUMENTS		
X : particularly relevant if taken alone	T : theory or principle underlying the invention	
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